

MOLECULES AND COVALENT BONDING (Nelson text, pg. 206-207)

Nitrous oxide, _____, is a colourless sweet-smelling gas that dentists use to relax nervous patients. You would not however want to inhale nitrogen dioxide, _____. This reddish-brown _____ gas is produced in the atmosphere from pollutants emitted in _____ exhaust.

Nitrous oxide and nitrogen dioxide are both _____ which are made up of individual particles called _____. Ionic compounds consists of many _____ in a _____ (compare Fig. 2 A and B). The chemical formula of a molecular compound gives the exact numbers of _____ in each _____. The elements that make up molecular compounds are all _____.

Molecular compounds are all around you: in the air you breathe and in the substances that you eat and drink. A soft drink contains water molecules, _____, and sugar molecules, _____, etc. Carbonated soft drinks contain dissolved carbon dioxide molecules, _____. The majority of known compounds are _____. Sugars, _____ and proteins are all molecular compounds. Some of them are very large containing thousands of atoms in a single _____.

Ions form when _____ elements lose _____ to non-metal elements. An electron transfer occurs because:

- The _____ hold on its _____ electrons is weak
- The attraction of the non-metal for the metal's electron is _____
- A full _____ electron orbit is very _____

Non-metals all have almost-full outer electron orbits. This allows non-metal atoms to get relatively _____ to each other. When two non-metals bond with each other, both _____ form strong attractions for the other's _____. However, neither atom attracts the other's electrons strong enough to pull them away completely. What results is a "tug-of-war" for _____ that neither atom wins. The net effect is that the two atoms _____ each other's electrons, resulting in a _____ that holds the atoms together. A chemical bond that results from atoms sharing electrons is called a _____ bond. The bonded atoms form a _____. Molecules that consist of only two atoms joined with a covalent bond are called _____ molecules.

Covalent bonds can form between identical or non-identical atoms.

Draw Fig. 4 (pg. 207)

Draw Fig. 5 (pg. 207)